REMARKS

Claims 1-9, 20-27, 31-35 and 39 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Schmidt et al. (U.S. Patent Application Publication Number 20030099214, hereinafter "Schmidt"), claims 1-9, 20-27, 31-35 and 39 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Rosen et al. (U.S. Patent Application Publication Number 20030008657, hereinafter "Rosen"), claims 10-19 and 36-38 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Rosen in view of May et al. (U.S. Patent Application Publication Number 20040121791, hereinafter "May"), and claims 28-30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Rosen in view of Okon et al. (U.S. Patent Application Publication Number 20050043022, hereinafter "Okon"). The Examiner's reply in the *Response to Arguments* section of the present office action is appreciated. However, respectfully disagreeing with these rejections, reconsideration is requested by the applicant(s).

Regarding the rejection of claims 1 and 32, the Examiner cites Schmidt [0003, 0004, 0014, 0015 and 0028], which read as follows (emphasis added):

> [0003] 3GPP2 packet data standard TIA/EIA/707-A-1.12 (Data Service Options for Spread Spectrum Systems: cdma2000 High Speed Packet Data Service Option 33), and subsequent versions (hereinafter referred to as IS-707), specifies an Active state and a Dormant state for a wireless communication device, such as a mobile station (MS), during a packet data session. In the Active state, the MS is connected to infrastructure equipment via a dedicated RF connection. The infrastructure provides a dedicated connection between a Base Transceiver Station (BTS) and a Packet Control Function (PCF). The PCF is connected to a Packet Data Service Node, which is connected to a packet network. A packet call is moved into the Active state when there is a burst of packet data to transmit.

> [0004] In the Dormant state, the dedicated Radio Frequency (RF) connection, and the dedicated connection between the BTS and the PCF, are released. The packet call transitions from the Active state to the Dormant state **when there has been no data transmission for a predetermined time period**. The packet call may transition between the Active state and the Dormant state many times, depending on the bursty nature of the data and on the duration of the time period. While the packet session is in the Dormant state, bearer data cannot be transmitted, and must be buffered. In order transmit the

buffered data, the call must be assigned a dedicated RF connection and a dedicated connection between the BTS and the PCF must be established. **The delay incurred in order to reestablish a dedicated connection between the MS and the PCF has a negative impact on the quality of the data service**.

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[0014] Referring to FIG. 2, a flowchart of the preferred embodiment of the method of expediting transitions between states of operation in a MS 118 is shown. The method runs on any microprocessor or computer commonly known in the art. When the MS 118 transitions from the Dormant or Semi- Dormant state to the Active state, the BS 109 must locate the network element maintaining the connection between the BS 109 and PDSN 106 for the call. The BS 109 then connects the network element to the RF bearer path that is established to the MS 118. Locating the network element delays the transmission of bearer frames. However, in accordance with the present invention, the delay can be avoided if the BS 109 provides the MS 118 with the equipment identifier of the network element when the session is first established. At step 202, **when no data has been transmitted between the MS 118 and the SDU 110 for a predetermined period of time, the BS 109 instructs the MS 118 to release the dedicated RF connection, and the BS 109 and MS 118 transition to the Semi-Dormant state**. The BS 109 also sends the MS identifiers for the SDU 110 and PCF 108 and a time "t" when the MS 118 will transition from the Semi-dormant state to the Dormant state. In the preferred embodiment, the equipment identifiers are the IP addresses and Port addresses of the SDU 110 and PCF 108. At step 206, the MS 118 transitions from the Active state to the Semi-dormant state. In an alternate embodiment, the BTS 112, 114, 116 caches the equipment identifiers. When the MS 118 reconnects, the BTS 112 , 114, 116 can quickly retrieve the equipment identifier and use it to setup the connection for the call.

[0015] At step 208, the MS 118 builds a Semi-Dormant Report list (SDRL). **When the BS 109 initiates the MS's transition from the Dormant or Semi-Dormant state to the Active state, it must locate the MS 118 in order to set up an RF connection between the BTS 112, 114, 116 and the MS 118. This is currently done by paging the MS 118 and waiting for a page response. The paging/paging response procedure delays the start of transmission of bearer frames.** If the BS 109 knows which sectors can maintain a connection to the MS 118, a channel assignment can immediately be sent to the MS 118, bypassing the page and page response procedure, and starting the transmission of bearer frames sooner. To support this, the MS 118 sends the BS 109 signal strength information via the common control channel while in the Semi- Dormant state. Preferably, the signal strength information is conveyed in a RF Measurement Report Message (RFMM). The pilots reported in the RFMM are those pilots in the Semi-Dormant Report List. **When the BS 109 initiates re- activation, in step 215, it will have enough information to immediately channel assign the MS 118 into the Active state**. To minimize the delay to transmit a channel assignment message from the BS 109 to the MS 118 when the BS 109 initiates re-activation, the MS 118 will continuously monitor the common control channel while in the Semi-Dormant state (step 207 in FIG. 2).

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[0028] Turning now to FIG. 3, a flowchart of the preferred embodiment of the method in the BS 109 is shown. The method in the BS 109 runs in both the SDU 110 and the BTS

> 112, 114 , 116 on any microprocessor or computer commonly known in the art. The method is first described with reference to the SDU 110. At step 302, the SDU 110 begins sending/receiving data to/from the MS 118. At step 304, the SDU stops sending/receiving data to/from the MS 118 and starts an inactivity timer. The inactivity timer sets a limit on the amount of time that can pass without the SDU sending or receiving data. At step 306 , the SDU determines whether the inactivity timer has expired. If the timer has not expired, the SDU again determines whether there is data to send or receive (step 308). If there is no data to send or receive, the method remains in a loop consisting of steps 306 and 308 until the inactivity timer expires or until there is data to send or receive. When there is data to send or receive, the method proceeds to step 302 and continues processing as previously described. **When the timer expires, the SDU 110 transitions from the Active state to the Semi-Dormant state (step 310).** At step 312, the SDU 110 sends a message instructing the MS 118 to transition to the Semi-Dormant state. The message includes the identifiers of the SDU 110 and PCF 108 and **time t when the MS 118 should transition from the Semi-Dormant state to the Dormant state**. At step 314, the method determines whether time t has arrived. **If time t has arrived, the BS 109 transitions to the Dormant state** (step 332) and releases the SDU 110 (step 334). At step 336, the BS 109 waits for data from the PDSN 106 or an access request (Origination message) from the MS 118.

In contrast, independent claim 1 recites (emphasis added) "determining by a mobile station (MS) that at least one condition from the group consisting of a **low mobility condition** and an **active user messaging condition** is present for the MS; and transitioning, **as triggered by the presence of <u>the</u> at least one condition**, to at least one operational mode **in which paging-related delays for the MS are <u>reduced</u>**." Independent claim 32 recites (emphasis added) "adapted to determine that at least one condition from the group consisting of a **low mobility condition** and an **active user messaging condition** is present for the MS; and adapted to transition, **as triggered by the presence of <u>the</u> at least one condition**, to at least one operational mode **in which paging-related delays for the MS are <u>reduced</u>**."

The applicants submit that Schmidt, as cited, does not teach or suggest transitioning, as triggered by the presence of the at least one condition, to at least one operational mode in which paging-related delays for the MS are reduced. The Examiner seems to indicate parenthetically that the transition described in Schmidt from the active state to the dormant state anticipates the transition recited in claims 1 and 32. However, the applicants do not see on what basis the Examiner is therefore asserting that the dormant state is an operational mode in which paging-related delays for the MS are

reduced, particularly in view of Schmidt [0015] which describes the need to return to the active state and the delays involved therein.

Certainly there are ways to reduce the delays involved in transitioning from the dormant state to the active state, but that does not make transitioning to the dormant state from the active state a transition to an operational mode in which paging-related delays for the MS are **reduced**. Even if one argues that transitioning to the dormant state requires no additional paging-related delays, such a transition still does not anticipate transitioning to at least one operational mode in which paging-related delays for the MS are <u>**reduced**</u>.

The Examiner also seems to indicate parenthetically that the active state and the dormant state anticipate an active user messaging condition and a low mobility condition, respectively. However, the applicants do not see the Examiner's basis for associating low mobility with the dormant state. Schmidt [0004, 0014 and 0028] all describe the dormant state as resulting from the MS's data communication inactivity. However, the MS may be highly mobile or stationary completely independent of whether it is involved in data communication; thus, a low mobility condition is not indicated by being in the dormant state. In addition, the applicants submit that Schmidt, as cited, does not teach or suggest transitioning as **triggered by** the presence of a low mobility condition or an active user messaging condition, even as the Examiner has interpreted these conditions.

In the *Response to Arguments* section of the present office action, the Examiner notes that the applicants do not specify exactly whether the at least one condition is a low mobility condition or an active user messaging condition. The applicants submit that claims 1 and 32 recite that the at least one condition is either a low mobility condition, an active user messaging condition, or both. Regarding Schmidt, the Examiner stresses that BS 109 will be able to immediately channel assign the MS 118 into the Active state from a Dormant or a Semi-Dormant state. However, the applicants submit that this misses the point. How does the transitioning in Schmidt between active, dormant, and/or semi-dormant states reduce paging-related delays as the claims recite? It appears that Schmidt teaches how to avoid the need to page an MS in order to transition back to an active state. So if no paging is needed in an active state and no

paging is needed in a dormant or semi-dormant state, how are paging related delays **reduced** by transitioning between these states? Paging related delays may be reduced for MS 118 in Schmidt as compared to the prior art of Schmidt, but paging related delays would not appear to be reduced for MS 118 in Schmidt as MS 118 is transitioned between states, in the manner in which the Examiner is arguing. Rather, the paging related delays would appear to remain the same.

Regarding the rejection of claims 1 and 32, the Examiner has cited Rosen [0012, 0048, 0049, 0063, 0070, 0091, 0106, 0107, 109 and 0110], which read as follows (emphasis added):

> [0012] In one aspect, an apparatus for avoiding simultaneous service origination and paging in a mobile operating in a group communication network includes a receiver, a transmitter, and a processor communicatively coupled with the receiver and the transmitter. The processor is capable of receiving a floor-control request, e.g., in SDB form, from a source communication device for initiating a group call, initiating a service origination process for the source communication device, and transmitting a response to the floor-control request from a controller after the service origination process is complete.
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> [0048] In one embodiment, when the packet data service is active, resources in the infrastructure, e.g., base station transceiver subsystem (BTS), base station controller (BSC), interworking (IWF), and the radio link are actively assigned to the mobile station (MS). In an IP-based VoIP dispatch service, while there is an active conversation going on between group participants, the packet data connection for each user remains active. However, after a period of inactivity, i.e., "hang time," in the group communications the user traffic channels may transition to the dormant state.
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> [0049] **The transition to the dormant state conserves system capacity, reduces service cost and battery drain, and makes the user available to receive incoming conventional voice calls**. For example, when the user is in an active packet data call, he will generally be considered to be "busy" to incoming voice calls. If the user's packet data call is in the dormant state, the user may be able to receive incoming voice calls. For these reasons, it is desirable to transition the packet data call to the dormant state after periods of packet data inactivity.
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> [0063] **Therefore, use of the available reverse common channels and/or SDB feature to signal floor-control requests to the CM, when a mobile station does not have active dedicated traffic channels, reduces the total time required to wake up the participating mobiles**. Although the talker client may not receive confirmation that its floor-request has been granted until the talker's forward traffic channel is re-established, the ability to quickly signal the CM **to begin waking up participating listeners** reduces

the overall latency.

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[0070] In one embodiment, the infrastructure may send the wakeup trigger 412 to a target listener over some available common forward channels, such as forward paging channel and forward common control channel, while the target listeners' traffic channels are not re- established yet. In one embodiment, the infrastructure may send the wakeup trigger 412 to the target listener in SDB form, regardless of what channel is used. If the PTT floor-control request is sent on the talker's reverse common channel as a SDB message and the target group's dormancy response timer is set to zero at the CM, actual PTT latency at the talker client may be reduced to the time required to send an SDB request message on the reverse link followed by a SDB response message on the forward link.

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[0091] In one embodiment, the client MS may buffer media to control the apparent PTT latency experienced by the user. The combination of mobile- originated SDB and client-side media buffering may reduce the **delays associated with re-establishing active traffic channels**.

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[0106] In one embodiment, the mobiles may operate under a packet data standard that provides an additional dormant/idle state in which the mobile and infrastructure maintain the PPP layer state associated with the mobile while allowing either endpoint to release the dedicated traffic channels and other resources associated with the mobile's packet-data service option call. **Either the mobile or the infrastructure may transition the state of the packet data call from dormant/idle state to active state by re-establishing a traffic channel and renegotiating RLP**. The time required to re-establish the traffic channel may be dependent on whether the mobile or the infrastructure initiates the re-establishment. However, in both cases **the delay is comparable to that required to originate a new call on the system**, as essentially all system resources may need to be requested and allocated to the mobile.

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[0107] In one embodiment, the mobiles may operate in a "control-hold" mode that operates as an interim position between the active and idle modes. In control-hold mode, the dedicated traffic channels associated with the mobile may be released and the mobile's reverse pilot may operate in "gated" mode. In one embodiment, the dedicated common control channel and/or the RLP state may also maintained. In essence, the control- hold mode offers a semi-dormant state in which most system resources may remain allocated, but the average reverse- link transmission power is reduced to a gated pilot in order to reduce the impact to system capacity. FIG. 7 shows an exemplary arrangement for radio modes.

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[0109] **Mobiles may transition from control-hold mode to active mode by sending either a resource request message or a resource request mini message**. These messages may be transported via the dedicated control channel, and the mini-messages may be sent using shorter, e.g., 5 ms, frames, **allowing fast transitions into and out of control-hold mode**. On advantage of the control-hold mode, compared to the traditional idle mode or the dormant/idle mode, as described above, is the **relatively fast transition possible from control-hold mode to active mode**.

> …
> [0110] In one embodiment, upon receiving an indication from the CM that a subscribed group has transitioned to the group-dormant state, a client mobile may initially transition itself to the control-hold mode and, after an additional sustained period of inactivity, make a further transition to the idle mode. **Therefore, control-hold mode offers a mechanism to significantly reduce the time required to re-establish dedicated traffic channels once a user presses PTT or a wakeup request trigger is received at the infrastructure**.

In contrast, independent claim 1 recites (emphasis added) "determining by a mobile station (MS) that at least one condition from the group consisting of a **low mobility condition** and an **active user messaging condition** is present for the MS; and transitioning, **as triggered by the presence of <u>the</u> at least one condition**, to at least one operational mode **in which paging-related delays for the MS are <u>reduced</u>**." Independent claim 32 recites (emphasis added) "adapted to determine that at least one condition from the group consisting of a **low mobility condition** and an **active user messaging condition** is present for the MS; and adapted to transition, **as triggered by the presence of <u>the</u> at least one condition**, to at least one operational mode **in which paging-related delays for the MS are <u>reduced</u>**."

The applicants submit that Rosen, as cited, does not teach or suggest transitioning, as triggered by the presence of the at least one condition, to at least one operational mode in which paging-related delays for the MS are reduced. The Examiner seems to indicate parenthetically that the transition described in Rosen from the active state to the dormant state anticipates the transition recited in claims 1 and 32. However, the applicants do not see on what basis the Examiner is therefore asserting that the dormant state is an operational mode in which paging-related delays for the MS are reduced, particularly in view of all the references to the delays involved in waking up / re-establishing traffic channels for the dormant listeners in Rosen [0063, 0091, 0106 and 0110].

Certainly there are ways to reduce the delays involved in transitioning from the dormant state to the active state, but that does not make transitioning to the dormant state from the active state a transition to an operational mode in which paging-related delays for the MS are **reduced**. Even if one argues that transitioning to the dormant state requires no additional paging-related delays, such a transition still does not

anticipate transitioning to at least one operational mode in which paging-related delays for the MS are **reduced**.

The Examiner also seems to indicate parenthetically that the active state and the dormant state anticipate an active user messaging condition and a low mobility condition, respectively. However, the applicants do not see the Examiner's basis for associating low mobility with the dormant state. The dormant state is a result of the MS's data communication inactivity. However, the MS may be highly mobile or stationary completely independent of whether it is involved in data communication; thus, a low mobility condition is not indicated by being in the dormant state. In addition, the applicants submit that Rosen, as cited, does not teach or suggest transitioning as **triggered by** the presence of a low mobility condition or an active user messaging condition, even as the Examiner has interpreted these conditions.

In the *Response to Arguments* section of the present office action, the Examiner notes that the applicants do not specify exactly whether the at least one condition is a low mobility condition or an active user messaging condition. The applicants submit that claims 1 and 32 recite that the at least one condition is either a low mobility condition, an active user messaging condition, or both. Regarding Rosen, the Examiner stresses the fast transitions possible from control-hold mode to active mode that are touted in Rosen [0109 and 0110]. However, the applicants submit that this misses the point. How does the transitioning in Rosen between states reduce paging-related delays as the claims recite? Paging related delays may be reduced for mobiles in Rosen as compared to the prior art of Rosen, but paging related delays would not appear to be reduced for mobiles in Rosen as they are transitioned between states, in the manner in which the Examiner is suggesting.

Since none of the references cited, either independently or in combination, teach all of the limitations of independent claims 1 or 32, or therefore, all the limitations of their respective dependent claims, it is asserted that neither anticipation nor a prima facie case for obviousness has been shown. No remaining grounds for rejection or objection being given, the claims in their present form are asserted to be patentable over the prior art of record and in condition for allowance. Therefore, allowance and issuance of this case is earnestly solicited.

The Examiner is invited to contact the undersigned, if such communication would advance the prosecution of the present application. Lastly, please charge any additional fees (including extension of time fees) or credit overpayment to Deposit Account No. **502117 -- Motorola, Inc**.

Respectfully submitted,
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